

REMARKS

In the Office Action mailed on March 9, 2006, claims 1-34 were pending. Claims 1-19 were withdrawn from consideration. Claims 20-34 were rejected.

Claims 20, 23, 26, 27 and 33 have been amended and new claim 35 has been added. The proposed amendments and new claim do not contain new matter and support can be found in the originally filed specification at paragraph [0049] and [0036] as well as in the originally filed claims, among other places. Applicants respectfully request admission of the amended claims.

Claim 24, 25, 29, 31 and 32 were cancelled and are no longer pending.

I. Election Requirement

In the Office Action at page 2, number 1, the Examiner is requiring a restriction to one of the following inventions:

Group I- claims 1-6 drawn to a cathode target;

Group II- claims 7-19 drawn to a method of depositing; or

Group III- claims 20-34 drawn to a coated article.

During a telephone conversation with the Examiner, attorney for Applicants elected to prosecute Group III without traverse. At this time, Applicants affirm the previous election without traverse.

II. Claim Objections

In the Office Action at page 4, number 9, claim 29 was objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 29 has been cancelled so this objection is now moot.

III. Rejections under 35 U.S.C. §102

A. Rejection over U.S. Patent Application Publication No.

2003/0012963 ("Ebisawa")

In the Office Action at page 4, number 11, claims 20-24, 27-31 and 34 were rejected under 35 U.S.C. §102(a) as being anticipated by United States Patent Application Publication No. 2003/0012963 (Ebisawa). The Examiner stated that Ebisawa discloses an antireflective layer that can be zinc oxide with additional Ti and Al. Applicants respectfully traverse this rejection.

1. The Present Invention

The present invention as recited in amended claim 20 is a coated article, comprising: a substrate; a functional coating deposited over at least a portion of the substrate; and a Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al coating is 20 to 60 atomic percent aluminum.

The present invention as recited in amended claim 27 is a coated article, comprising: a substrate; a functional coating deposited over at least a portion of the substrate, wherein the functional coating comprises at least one dielectric layer, at least one infrared reflective layer deposited over the dielectric layer, and at least one primer film deposited over at least a portion of the infrared reflective layer; and a Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides titanium and aluminum incorporated into the functional coating, wherein the Ti-Al layer is 20 to 60 atomic percent aluminum.

2. Ebisawa

Ebisawa discloses a glazing panel carrying a coating stack comprising in sequence at least: a glass substrate, a base antireflective layer, an infra-red reflecting layer, and a top antireflective layer and is characterized in that at least one of the antireflective layers comprises at least one mixed oxide layer which comprises an oxide which is a mixture of Zn and at least one additional material X, in which the atomic ratio X/Zn is greater than or equal to 0.12 and in which X is one or more of the materials selected from the group comprising the elements of groups 2a, 3a, 5a, 4b, 5b, 6b of the periodic table.

3. Traversal of the Rejection

For a proper rejection under 35 U.S.C. § 102, the cited reference must disclose each and every limitation of the invention. The present invention as recited in amended claim 20 is a coated article comprising a Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al coating is 20 to 60 atomic percent aluminum. The Ti-Al coating contains the transition language "consisting essentially of" which limits the other materials that can be included in the coating. Materials that would materially affect the performance of the coating cannot be included.

In contrast to the present invention, Ebisawa discloses an antireflective layer comprising **zinc oxide** with additional Ti and Al. Zinc oxide cannot be included in the Ti-Al coating of the present invention because the zinc oxide

would affect the performance properties of the coating. Zinc oxide affects properties of the coating such as refractive index, etc.

As a result, Ebisawa does not disclose each and every limitation of the present invention as recited in claim 20. Specifically, the Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum recited in claim 20 is not disclosed by the reference. The cited reference does not anticipate the present invention as recited in claim 20, and Applicants respectfully request the withdrawal of this rejection.

Claims 21-23 directly or indirectly depend on claim 20 and recite the present invention in varying scope. Applicants have discussed above how claim 20 is not anticipated by over the cited reference, and claims 21-23 are similarly not anticipated by Ebisawa. Specifically, the Ti-Al coating **consisting essentially of** oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 20 and further limited by claims 21-23 is not anticipated by the reference. As a result, Applicants respectfully request the withdrawal of this rejection.

The present invention as recited in amended claim 27 is a coated article comprising a Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al layer is 20 to 60 atomic percent aluminum. The Ti-Al layer contains the transition language “consisting essentially of” which limits the other materials that can be included in the coating. Materials that would materially affect the performance of the coating cannot be included.

In contrast to the present invention, Ebisawa discloses an antireflective layer comprising zinc oxide with additional Ti and Al. For the reasons discussed above, Ebisawa does not disclose each and every limitation of the present invention as recited in claim 27. Specifically, the Ti-Al layer **consisting essentially of** oxides, nitrides or oxynitrides of titanium and aluminum is not disclosed by the reference. As a result, the cited reference does not anticipate the present invention as recited in claim 27, and Applicants respectfully request the withdrawal of this rejection.

Claims 28, 30 and 34 directly or indirectly depend on claim 27 and recite the present invention in varying scope. Applicants have discussed above how claim 27 is not anticipated by over the cited reference, and claims 28, 30 and 34 are similarly not anticipated by Ebisawa. Specifically, the Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 27 and further limited by claims 28, 30 and 34 is not anticipated by the reference. As a result, Applicants respectfully request the withdrawal of this rejection.

B. Rejection over U.S. Patent No. 4,992,087 (“Holscher”)

In the Office Action at page 5, number 12, claims 20, 21, 24-27, 29 and 31-33 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,992,087 (“Holscher”). The Examiner stated that Holscher discloses a coating formed on a glass substrate comprising Al-Ti and that the Al-Ti coating can contain at least 40% aluminum. Applicants respectfully traverse this rejection.

1. Holscher

Holscher discloses a glass plate provided with a transmission-reducing coating, to which on one side of the glass plate is applied at least one metal coating with a preponderant content of at least one metal or a metal alloy from elements of numbers 22 to 28 of the Periodic System of elements and to the latter is applied a metal-containing protective coating formed by an alloy of Al with Ti and/or Zr.

2. Traversal of the Rejection

The rule for a proper rejection under section 102 is shown above. The present invention as recited in amended claim 20 is a coated article comprising a Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al coating is 20 to 60 atomic percent aluminum.

In contrast to the present invention, Holscher discloses a protective coating formed by an alloy of Al with Ti and/or Zr. Such coating is a **metal coating**; not an oxide, nitride or oxynitride. There is no disclosure in Holscher that oxides, nitrides or oxynitrides of the disclosed metals would perform satisfactorily as a protective coating.

As a result, Holscher does not disclose each and every limitation of the present invention as recited in claim 20. Specifically, the Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 20 is not disclosed by the reference. The cited reference does not

anticipate the present invention as recited in claim 20, and Applicants respectfully request the withdrawal of this rejection.

Claims 21 and 26 directly or indirectly depend on claim 20 and recite the present invention in varying scope. Applicants have discussed above how claim 20 is not anticipated by the cited reference, and claims 21 and 26 are similarly not anticipated by Holscher. Specifically, the Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 20 and further limited by claims 21 and 26 is not anticipated by the reference. As a result, claims 21 and 26 are not anticipated by the cited reference, and Applicants respectfully request the withdrawal of this rejection.

The present invention as recited in amended claim 27 is a coated article comprising a Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al layer is 20 to 60 atomic percent aluminum. For the reasons stated above, Holscher does not disclose each and every limitation of the present invention as recited in claim 27. Specifically, the Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 27 is not disclosed by the reference. As a result, the coated article recited in claim 27 is not anticipated by the reference, and Applicants respectfully request the withdrawal of this rejection.

Claim 33 directly depends on claim 27 and recites the present invention in varying scope. Applicants have discussed above how claim 27 is not anticipated by the cited reference, and claim 33 is similarly not anticipated by Holscher.

Specifically, the Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claim 27 and further limited by claim 33 is not disclosed by the reference. As a result, claim 33 is not anticipated by the cited reference, and Applicants respectfully request the withdrawal of this rejection.

IV. Rejection under 35 U.S.C. §103

At page 6, number 14, claims 20-27, 29, 30 and 32-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,007,901 ("Maschwitz") further in view of Holscher. The Examiner stated that while there are not specific examples demonstrating the use of TiAl, it would have been obvious to one skilled in the art at the time of the invention to utilize an alloy of TiAl to create a protective layer that is exceptionally degradation resistant and less expensive. Applicants respectfully traverse this rejection.

A. Maschwitz

Maschwitz discloses a heat reflecting fenestration composite which includes in sequence: (a) a substantially transparent substrate; (b) a first outer dielectric layer; (c) an infrared reflecting metal layer; (d) a color correcting metal layer comprising a metal different from the infrared reflecting metal layer; and (e) a protective metal layer. The protective metal layer is made from a metal whose oxide is substantially non-optically absorbing, such as aluminum, titanium, zirconium, niobium, hafnium, tantalum, tungsten and alloys thereof, with titanium being preferred.

B. Traversal of the Rejection

For a proper rejection under 35 U.S.C. § 103, the PTO must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. See In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See Amgen, Inc., 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed Cir. 1991). Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

The present invention as recited in amended claim 20 is a coated article comprising a Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al coating is 20 to 60 atomic percent aluminum.

In contrast to the present invention as recited in claim 20, Maschwitz discloses a **protective metal layer** such as aluminum, titanium, zirconium, niobium, hafnium, tantalum, tungsten and alloys thereof. There is no disclosure in Maschwitz of an oxide, nitride or oxynitride nor that oxides, nitrides or oxynitrides of the disclosed metals would perform satisfactorily as a protective coating. Further, it would not be obvious to use oxides, nitrides or oxynitrides of

the disclosed metals based on the teaching of Maschwitz because the properties of the oxides, nitrides and oxynitrides are different from the properties of the metals. For example, the materials mentioned above have different indices of refraction than metals, exhibit different degrees of durability under certain conditions, etc.

As a result, Maschwitz does not teach or suggest all of the limitations in the claim 20. Specifically, the Ti-Al coating consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum is not taught or suggested either, implicitly or explicitly, by the cited reference. The present invention as recited in claim 20 is patentably distinguishable over the cited reference, and Applicants respectfully request the withdrawal of this rejection.

Claims 21-23 and 26 directly or indirectly depend on claim 20 and recite the present invention in varying scope. Applicants have discussed above how claim 20 is patentably distinguishable over the cited reference, and claims 21-23 and 26 are similarly patentably distinguishable over Maschwitz. There is nothing in Maschwitz that teaches or discloses, either implicitly or explicitly, the coated article recited in claim 20 as further limited by claims 21-23 and 26. As a result, Applicants respectfully request the withdrawal of this rejection.

The present invention as recited in amended claim 27 is a coated article comprising a Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum deposited over at least a portion of the functional coating, wherein the Ti-Al is 20 to 60 atomic percent aluminum. For the reasons stated above, the present invention as recited in claim 27 is patentably distinguishable

over the cited reference. Specifically, Maschwitz does not teach or suggest either, implicitly or explicitly, the Ti-Al layer consisting essentially of oxides, nitrides or oxynitrides of titanium and aluminum as recited in claims 27. As a result, Applicants respectfully request the withdrawal of this rejection.

Claims 30, 33 and 34 directly or indirectly depend on claim 27 and recite the present invention in varying scope. Applicants have discussed above how claim 27 is patentably distinguishable over the cited reference, and claims 30, 33 and 34 are similarly patentably distinguishable over Maschwitz. As a result, Applicants respectfully request the withdrawal of this rejection.

V. New Claim

New claim 35 has been added. The present invention as recited in claim 35 is a primer layer comprising titanium and aluminum **directly over and in contact** with an infrared reflective coating. None of the cited references disclose or teach a Ti-Al coating as a primer layer. The cited references teach a Ti-Al coating as a protective coating. As a result, the cited references do not teach a Ti-Al coating **directly over and in contact with** an infrared reflective coating. Therefore, claim 35 should be allowable over the cited references. Applicants respectfully request allowance of claim 35.

Conclusions

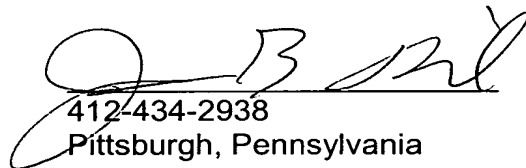
In light of the amendments and remarks presented in this correspondence, Applicants respectfully request withdrawal of the objection to claim 29 under 37 CFR 1.75(c) and the following rejections: the rejection of claims 20-24, 27-31 and 34 under 35 U.S.C. §102(a) as being anticipated by Ebisawa; the rejection of

claims 20, 21, 24-27, 29 and 31-33 under 35 U.S.C. §102(b) as being anticipated by Holscher; the rejection of claims 20-27, 29, 30 and 32-34 under 35 U.S.C. §103(a) as being unpatentable over Maschwitz further in view of Holscher; and the allowance of claims 20-23, 26-28, 30 and 33-35.

If any questions remain about this application, the Examiner is requested to contact Applicants' attorney at the telephone number provided below. Thank you.

Respectfully submitted,

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